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4 Normal Procedures

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4.1 Introduction

Section 4 describes operations and recommended procedures for normal operation of the airplane. Normal procedures following from system installation and optional equipment, which require supplementation of these Instructions, are shown in section 9 - Supplements.

4.2 Recommended Speeds for Normal Procedures

4.2.1 Take-off

Climbing speed up to 50 ft
(flaps in **TAKE-OFF** pos. - 15°) ..... 57 KIAS (106 km/h IAS)

Best rate-of-climb speed V_Y
(flaps in **TAKE-OFF** pos. - 15°) ..... 61 KIAS (113 km/h IAS)

Best rate-of-climb speed V_Y
(flaps retracted - 0°)..... 65 KIAS (120 km/h IAS)

Best angle-of-climb speed V_X
(flaps in **TAKE-OFF** pos. - 15°) ..... 48 KIAS (88 km/h IAS)

Best angle-of-climb speed V_X
(flaps retracted - 0°)..... 49 KIAS (90 km/h IAS)

4.2.2 Landing

Approaching speed for normal landing
(flaps in **LANDING I** position - 30°) ..... 57 KIAS (105 km/h IAS)

Approaching speed for normal landing
(flaps in **LANDING II** position - 50°) ..... 54 KIAS (100 km/h IAS)

4.3 Assembly and Disassembly

Description of assembly and disassembly is given in the Airplane Maintenance Manual for SportStar RTC airplane.

4.4 Pre-flight Check

Carry out pre-flight check according to the following procedure:

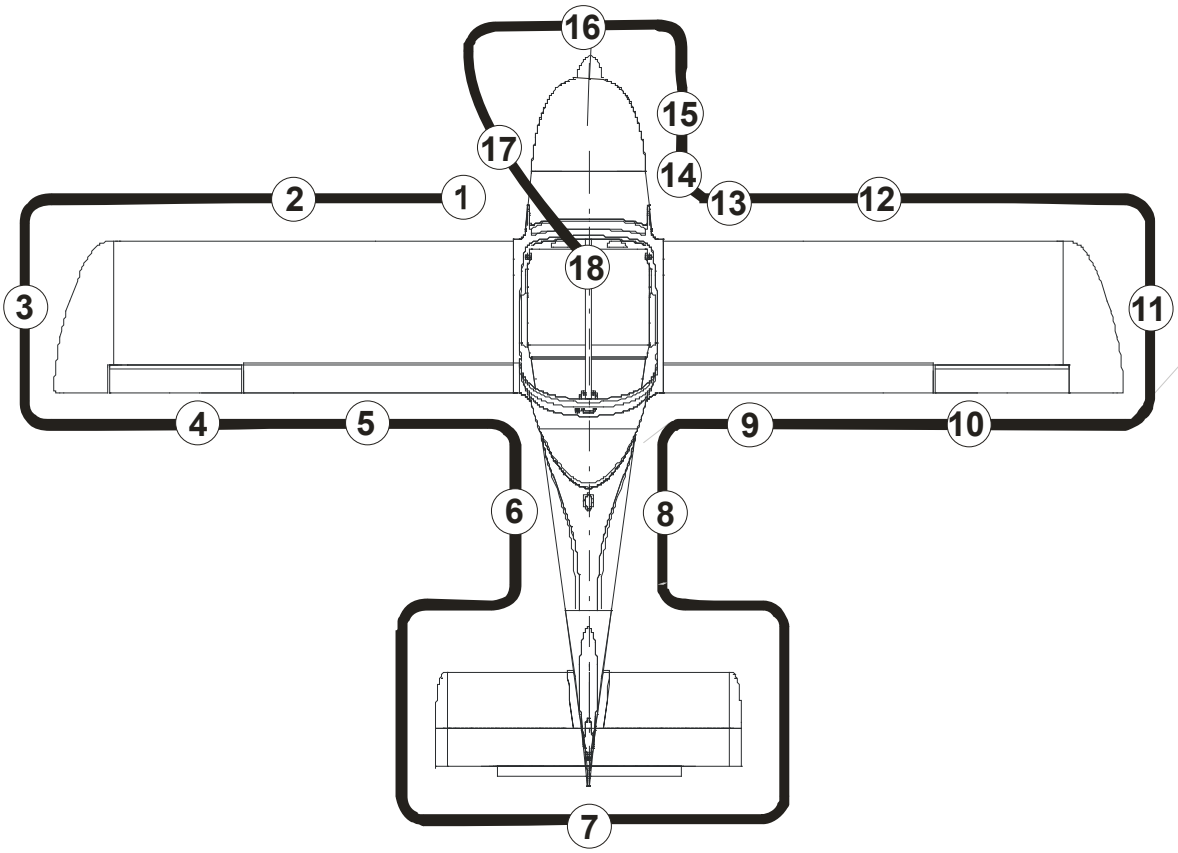

Figure 4-1

WARNING

CHECK BEFORE PRE-FLIGHT CHECK THAT IGNITION IS SWITCHED OFF!

NOTE

The word "condition", used in procedures of pre-flight check, means visual check of surface, damage, deformation, scratches, attrition, corrosion, icing or other effects decreasing flight safety.

1. Left landing gear leg - check
   - landing gear leg attachment and condition
   - attachment of brake system hose
   - landing gear wheel condition
   - condition and attachment of wheel covers
   - no contamination in the draining reservoirs of the pitot-static system
2. Left wing - check
   - wing surface condition
   - closing of the fuel tank cap
   - wing leading edge condition
   - condition of the stalling speed sensor
   - landing light condition
   - condition of the Pitot tube
3. Left wing tip - check
   - surface condition
   - attachment check
   - fuel tank vent - cleanness
   - condition and attachment of the position lights and the anti-collision beacon
4. Left aileron - check
   - surface condition
   - attachment
   - free movement
5. Left wing flap - check
   - surface condition
   - attachment
   - drain fuel tank (see Section 8, para 8.5.2)
6. Rear part of fuselage - check
   - surface condition
   - condition of antennas (top and bottom fuselage surface)
7. Tail units - check
   - tail skid condition
   - surface condition
   - condition of rudder and elevator attachment

- freedom of rudder and elevator movement
- condition of trim tab, condition and security of elevator trim tab control rods

8. Rear part of fuselage - check
   - surface condition
9. Right wing flap- see 5
10. Right aileron- see 4
11. Right wing tip - see 3
12. Right wing - see 2 - except the landing light and Pitot tube
13. Right landing gear leg - see 1
14. Front part of the fuselage - right hand side - check
    - tilting canopy attachment and condition
    - condition and attachment of GPS antenna
    - condition and cleanness of air intakes
    - condition of the nose landing gear leg and nose wheel
    - condition of the nose wheel control rods
15. Engine

    Checks before the first flight of day - it is necessary to remove upper engine cowling:
    - condition of engine bed
    - condition of engine attachment
    - condition of exhaust system
    - condition of engine cowlings
    - visual check on fuel and electrical system condition
    - check on cooling liquid volume in the expansion tank on the engine body (replenish required up to top; the max. coolant level must be flush with the bottom of the filler neck)
    - check on cooling liquid level in the overflow bottle; the coolant level must be between max. and min. mark
    - open oil tank cap, turn the propeller slowly by hand in direction of engine rotation several times to pump oil from the engine into the oil tank, this process is finished when air is returning back to the oil tank and can be noticed by a gurgle from the open oil tank – see the Rotax Operator's manual.); install oil tank cap

Checks before every flight:

- cleanness of air intakes
- check on oil level (between marks - flattening on the dip stick; difference between min. – max. marks is 0.5 l)
- proper closing of the upper engine cowling

16. Propeller - check
    - attachment
    - condition of blades, hub and spinner
17. Front part of fuselage - left hand side - check
    - cleanness of air intakes
    - tilting canopy attachment and condition
18. Cockpit - check

NOTE

Canopy is unlocked if a latch next to lock is visible under the glass, otherwise it is locked. Unlock it first with key.

- **MASTER SWITCH** ..... **ON**
- Check canopy OPEN/CLOSE red indication light function.
- All switches ..... **OFF**
- Instrument equipment ..... check on condition
- Check of safety belts condition and attachment
- Check pressure in the portable fire extinguisher (press gauge in the green arc) (if installed)
- Check on presence of loose object in the cockpit
- Check on adjusting and securing the rudder pedals (see Section 7, para 7.3.3)

WARNING

RIGHT AND LEFT PEDAL OF RUDDER CONTROL MUST BE SET TO THE SAME POSITIONS AND WELL SECURED!

- POH and other required documents ..... check on completeness and validity

4.5 Normal Procedures and Checklist

4.5.1 Before Engine Starting

1. Pre-flight check and check on weight and centre of gravity position ..... done
2. Safety harnesses ..... check, fasten
3. Rudder pedals ..... free
4. Control stick ..... free
5. Wing flaps ..... function check
6. **MASTER SWITCH** ..... **ON**
7. Trim tab ..... function check
8. **PARKING BRAKE** handle ..... release brakes
9. Brakes ..... function check
10. **AVIONICS SWITCH** ..... **OFF**
11. Ignition ..... **OFF**
12. Canopy ..... close

4.5.2 Engine Starting

1. Fuel gauge indicators ..... check of fuel quantity
2. **FUEL** selector ..... **LEFT**
   Pull the safety button on the fuel selector, turn the handle to the left and then release safety button. Now the handle can be freely moved between left and right position. Safety button prevents unintentionally switch the selector to **OFF** position.
3. Electric fuel pump ..... **ON**
4. **THROTTLE** lever ..... idle
5. **CHOKE** - cold engine ..... OPEN
   - warm engine ..... CLOSED
6. Space in the propeller area ..... free
7. **BEACONS** ..... **ON** (if necessary)
8. Brakes ..... apply

9. Ignition ..... **START** (see CAUTION) after starting up **BOTH**

CAUTION

ACTIVATE STARTER FOR 10 SEC. AS A MAXIMUM, AND THEN LET IT COOL DOWN FOR 2 MINUTES.

AFTER STARTING UP ENGINE, DO NOT CARRY OUT SUDDEN RPM CHANGES, AFTER POWER DECREASE WAIT FOR ABOUT 3 SEC. IN ORDER TO REACH CONSTANT RPM BEFORE REACCELERATION.

10. **THROTTLE** lever ..... as necessary (see NOTE)
11. Oil pressure ..... up to 10 sec. min. pressure

NOTE

After starting up engine, adjust throttle for smooth engine running at about 2500 RPM. Check oil pressure. Pressure must increase within 10s. Increase engine RPM until oil pressure is stabilized over 2 bar (29 PSI).

12. Engine instruments ..... check
13. **CHOKE** ..... CLOSED
14. Electric fuel pump ..... **OFF**
15. Engine warming up ..... see NOTE

NOTE

Begin warming up with engine running at 2000 RPM. For about 2 minutes, continue at 2500 RPM. Warming time depends on outside air temperature until oil temperature reaches 50 °C / 122 °F.

16. **FUEL** selector ..... **RIGHT**
    Verify proper engine feeding from the right tank for approx. 1 minute.
17. **FUEL** selector ..... **LEFT** or **RIGHT**
18. **AVIONICS SWITCH** ..... **ON**
19. Radio station / avionics ..... **ON**

Other electrical equipment ..... **ON** as necessary

4.5.3 Before Taxiing

1. Transponder ..... **SBY**
2. Outside lights ..... as necessary
3. **BEACONS** ..... **OFF**
4. **SOCKET** ..... **OFF**

4.5.4 Taxiing

1. **THROTTLE** lever ..... as necessary
2. Brakes ..... check by depressing
3. Rudder pedals ..... function check
4. Direction of taxiing control by rudder pedals (these are mechanically connected with nose wheel control), possibly by slacking up left and right wheel of the main landing gear.

4.5.5 Before Take-off

1. Brakes ..... apply
2. **BEACONS** ..... **ON** (if necessary)
3. Ignition check ..... carry out, see NOTE

NOTE

Carry out ignition check in the following way: Set engine speed to 4000 RPM. Switch ignition gradually to **L**, **BOTH**, **R** position and return to **BOTH**. RPM drop with one ignition circuit switched off must not exceed 300 RPM. Maximum RPM difference at using one of the L or R circuits is 120 RPM.

4. Control stick ..... free
5. Wing flaps ..... **TAKE-OFF** position (15°)
6. Trim tab ..... **NEUTRAL**
7. Fuel gauge indicator ..... check on fuel quantity
8. **FUEL** selector ..... **LEFT** or **RIGHT**
9. Electric fuel pump ..... **ON**
10. **CARBURET. PREHEAT.** knob ..... check function then **OFF**

NOTE

If **CARBURET. PREHEAT.** is switched **ON**, then engine RPM drop reaches approximately 50 RPM.

11. Engine instrument..... check
12. Flight instrument..... check
13. Radio station / avionics..... check, set
14. Ignition..... check **BOTH**
15. **CHOKE** ..... CLOSED (in inserted position)
16. Safety harness..... tighten up
17. Canopy..... closed
18. Transponder..... **ON** or **ALT**

4.5.6 Take-off

1. **THROTTLE** lever..... max. take-off power
2. During take-off run smoothly lighten up the nose landing gear until airplane take-off occurs.
3. After take-off accelerate airplane to..... 57 KIAS (106 km/h IAS)
4. Main landing gear wheels..... brake
5. After reaching 150 ft, set flaps to..... retracted position 0°
6. Accelerate airplane to ..... 65 KIAS (120 km/h IAS)
7. Trim ..... as necessary

WARNING

TAKE-OFF IS PROHIBITED:

- **IF ENGINE RUNNING IS IRREGULAR**
- **IF CHOKE IS OPEN**
- **IF VALUES OF ENGINE INSTRUMENTS ARE NOT WITHIN THE REQUIRED RANGE**

4.5.7 Climb

1. **THROTTLE** lever ..... max. continuous power
2. Airspeed ..... V_Y = 65 KIAS (120 km/h IAS)
   V_X = 49 KIAS (90 km/h IAS)
3. Engine instrument ..... check
4. Trim ..... as necessary
5. Electric fuel pump ..... **OFF**

4.5.8 Cruise

1. **THROTTLE** lever ..... as necessary
2. Airspeed ..... as necessary
3. Engine instruments ..... check
4. Fuel quantity ..... check

CAUTION

FUEL GAUGES DISPLAY TRUE FUEL QUANTITY ONLY ON GROUND AND IN A LEVEL FLIGHT. TO READ TRUE FUEL QUANTITY AFTER TRANSITION FROM CLIMB/DESCENT WAIT APPROX. 2 MINUTES TO FUEL TO LEVEL.

NOTE

It is recommended to alternately switch the tanks during cruise to equally consume fuel from both tanks and minimize airplane tendency to bank with unbalanced tanks.

If the engine conks out due to fuel consumption from either tank, then immediately switch the fuel selector to other tank and engine run will be recovered within 7 seconds.

5. **CARBURET. PREHEAT.** knob... ..... as necessary

4.5.9 Descent

1. **THROTTLE** lever..... as necessary
2. Airspeed ..... as necessary
3. Trim ..... as necessary
4. Engine instrument..... check
5. **CARBURET. PREHEAT**. knob..... as necessary

CAUTION

AT LONG APPROACHING AND DESCENDING FROM HIGH ALTITUDE IT IS NOT SUITABLE TO REDUCE THROTTLE TO MINIMUM FOR THE REASON OF POSSIBLE ENGINE UNDERCOOLING AND SUBSEQUENT LOSS OF POWER. PERFORM DESCENDING AT INCREASED IDLE AND CHECK OBSERVANCE OF THE ALLOWED VALUES ON ENGINE INSTRUMENTS.

4.5.10 Before Landing

1. Fuel quantity..... check

CAUTION

FUEL GAUGES DISPLAY TRUE FUEL QUANTITY ONLY ON GROUND AND IN A LEVEL FLIGHT. TO READ TRUE FUEL QUANTITY AFTER TRANSITION FROM CLIMB/DESCENT WAIT APPROX. 2 MINUTES TO FUEL TO LEVEL.

2. **FUEL** selector..... **LEFT** or **RIGHT**
3. Engine ..... check
4. Brakes ..... check by depressing pedals
5. Safety harnesses..... tighten up
6. Free area of landing ..... check
7. **CARBURET. PREHEAT.** knob..... **ON**
8. Approaching speed..... 59 KIAS (110 km/h IAS)
9. Flaps..... **TAKE-OFF** position (15°)
10. Airspeed ..... 57 KIAS (106 km/h IAS)
11. Trim ..... as necessary

12. **PARKING BRAKE** handle ..... check for lever down
13. Electric fuel pump..... **ON**
14. **SOCKET** ..... **OFF**

FINAL – NORMAL LANDING

1. Flaps ..... **LANDING I** position (30°)
2. Maintain airspeed..... 57 KIAS (105 km/h IAS)
3. Trim..... as necessary
4. **CARBURET. PREHEAT.** knob ..... **OFF**

FINAL – SHORT LANDING

5. Flaps ..... **LANDING II** position (50°)

NOTE

When extending wing flaps to LANDING II (50°) position at flight speeds close to V_{FE}, it is necessary to exert an increased force on the wing flap control lever.

6. Maintain airspeed..... 54 KIAS (100 km/h IAS)
7. Trim..... as necessary
8. **CARBURET. PREHEAT.** knob. ..... **OFF**

4.5.11 Balked Landing

1. **THROTTLE** lever ..... max. take-off power
2. Airspeed..... min. 54 KIAS (100 km/h IAS)
3. Flaps ..... **TAKE-OFF** position (15°)
4. Airspeed..... 57 KIAS (106 km/h IAS)
5. Flaps at altitude of 150 ft..... **RETRACTED** position (0°)
6. Climb at speed ..... 65 KIAS (120 km/h IAS)
7. Trim..... as necessary
8. **THROTTLE** lever ..... max. continuous power
9. Instruments ..... check

4.5.12 Landing

1. Flaps ..... **LANDING I** position (30°)
2. **THROTTLE** lever ..... idle
3. Touch-down on main landing gear wheels..... carry out
4. Brakes after nose landing gear wheel touch-down ..... as necessary

4.5.12.1 Short Landing

1. Flaps ..... **LANDING II** position (50°)
2. **THROTTLE** lever ..... idle
3. Airspeed ..... 49 KIAS (90 km/h IAS)
4. Touch-down on all three wheels ..... carry out
5. Brakes after touch-down ..... brake

4.5.13 After Landing

1. Flaps ..... **RETRACTED** position (0°)
2. Trim ..... NEUTRAL
3. Outside light ..... **OFF**
4. Transponder ..... **OFF**
5. Electric fuel pump ..... **OFF**
6. **BEACONS** ..... **OFF**

4.5.14 Engine Shut-off

1. **THROTTLE** lever ..... idle
2. Engine instruments ..... check
3. Radio station / avionics ..... **OFF**
4. **AVIONICS SWITCH** ..... **OFF**
5. Other electrical equipment ..... **OFF**
6. Ignition ..... **OFF**
7. **MASTER SWITCH** ..... **OFF**

4.5.15 Airplane Parking

1. Ignition ..... check **OFF**
2. **MASTER SWITCH** ..... check **OFF**
3. **FUEL** selector ..... **OFF**
   Pull the safety button on the fuel selector, turn the handle to the **OFF** position and then release safety button. Now the handle is blocked in the **OFF** position. Safety button prevents unintentionally switch the selector from the **OFF** position.
4. **PARKING BRAKE** handle ..... brake as necessary
5. Fix the control stick using safety harnesses during long-time parking.
6. Canopy ..... close,
   lock as necessary

NOTE

It is recommended to use parking brake for short-time parking only, between flights during a flight day. After ending the flight day or at low temperatures of ambient air, do not use parking brake, but use the wheel chocks instead.